



Purchasing Receipts

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Days	Past Due	Total	Supplier Name
PO041198	MES002-VC	1	1	Net 60	MT-1144-R4.000	1144 Steel Proof Round Bar 4.000" MATERIAL: AISI 1144 STRESSPROOF STEEL ROUND BAR ASTM A311 or UNS G11440				2	10/11/2018	2		S119930	Stock	10/18/2018	\$ 229.15 / ft	1		\$458.30	Metaux Solutions
		2			MT-1144-R5.000	1144 Steel Proof Round Bar 5.000" MATERIAL: AISI 1144 STRESSPROOF STEEL ROUND BAR ASTM A311 or UNS G11440						2		S119931	Stock	10/18/2018	\$ 476.35 / ft	1		\$952.70	Metaux Solutions
		3			MT-O1-R3.000	AISI O1 Tool Steel Round Bar 3.000" DIA. Material: AISI 01 TOOL STEEL ROUND BAR DIN 1.2510 or B.S. BO 1 or SAE J437 or SAE J438 or UNS T31501 or ASTM A681				3		3		S119932	Stock	10/18/2018	\$ 72.53 / ft	1		\$217.60	Metaux Solutions
		4			MT-4140QT-R4.500	AISI 4140 Quenched & Tempered Steel Round Bar 4.500" Dia. ; MATERIAL: AISI 4140 QUENCHED & TEMPERED STEEL ROUND BAR SPECIFICATION: ASTM 4140 QT or ASTM 4142 QT							3		S119933	Stock	10/18/2018	\$ 130.00 / ft	1		\$349.44
										Total:		10								\$1,516.40	



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041198**

Supplier: MES002-VC
Metaux Solutions
2625 boul Jacques-Cartier Est
Longueuil
QC
J4N 1L7 Canada
Phone: 800 558 8858
Fax: 514 633 8044

PO No: PO041198

PO Date: 10/1/18

Due Date: 10/11/18

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

E-MAILED
OCT 03 2018

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pynt Terms: Net 60

Freight Terms:

Special Comments: BID: 29293

Items

Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1 A		MT-1144-R4.000	CR444	1144 Steel Proof Round Bar 4.000" MATERIAL: AISI 1144 STRESSPROOF STEEL ROUND BAR ASTM A311 or UNS G11440	Firmed	-	10/11/18	2 ft	0 ft	2 ft	\$229.15/ft	\$458.30
2 A		MT-1144-R5.000	CR544	1144 Steel Proof Round Bar 5.000" : MATERIAL: AISI 1144 STRESSPROOF STEEL ROUND BAR ASTM A311 or UNS G11440	Firmed	-	10/11/18	2 ft	0 ft	2 ft	\$476.35/ft	\$952.70
3 A		MT-O1-R3.000	TR301	AISI O1 Tool Steel Round Bar 3.000" DIA. Material: AISI O1 TOOL STEEL ROUND BAR DIN 1.2510 or B.S. BO 1 or SAE J437 or SAE J438 or UNS T31501 or ASTM A681	Firmed	-	10/11/18	3 ft	0 ft	3 ft	\$72.53333/ft	\$217.60



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER
PO041198

Items												
Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
4 <i>AK</i>		MT-4140QT-R4.500	MR41241H	AISI 4140 Quenched & Tempered Steel Round Bar 4.500" Dia. : MATERIAL: AISI 4140 QUENCHED & TEMPERED STEEL ROUND BAR SPECIFICATION: ASTM 4140 QT or ASTM 4142 QT	Firmed	-	10/11/18	3.16 ft	0 ft <i>4995</i> <i>2.698 ft</i>	3 ft <i>AK 18/10/19</i>	\$130.00/ft	\$410.80
Grand Total: \$2,039.40												

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)
A026 certification of material conformance
A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

CL

Plex 10/1/18 11:53 AM dart.lavoie.chantal

METAUX SOLUTIONS INC
2625 BOUL JACQUES CARTIER EST
LONGUEUIL, QUEBEC
J4N 1L7 **Tel.:** 450 641-3330

Bid 27/09/2018 29293

Sales Rep.: JEROME PRIMEAU
Reference: CHANTAL
Expiration Date: 26/12/2018

Customer: 6323336

DART AEROSPACE LTD
1270, ABERDEEN STREET
HAWKESBURY, ONTARIO
K6A 1K7

Ship To :

Same

Tel.: 1 613 632-3336

Item No.	Description	Qty	Price	Total	Tx
	***** FACTURER E-MAIL ***** SUPER IMPORTANT SUR LE PACKING SLIP INSCRIRE LES HEAT N				
SR344	304 ROU 1.750 DIA 3 X 12' R/L HT	36	7.60	273.60	A
DT7818	MS TUB 875 X 1.125 SMLS 1 X 17/24' R/L HT;	20	4.20	84.00	A
DT118	MS TUB 1.000 X 1.120 WALL DOM 5 X 17/24' R/L HT;	100	3.25	325.00	A
MR13441H	4140 HTSR ROU 1.750 DIA 1 X 12' PAS DE 1.625" HT;	12	26.65	319.80	A
MR241H	4140 HTSR ROU 2.000 DIA 1 X 72" HT;	6	29.50	177.00	A
MR41241H	4140 HTSR ROU 4.500 DIA ✓ 1 X 27.5" AS IS 1 X 11.54É2 AS IS HT;	3.16	130.00	410.80	A
SR112174	17-4PH ROU 1.500 DIA COND. H1150 1 X 12' R/L HT;	12	62.75	753.00	A
SR2174	17-4PH ROU 2" DIA COND. H1150 1 X 12' R/L	12	98.15	1 177.80	A

*** Continued on Next Page ***

METAUX SOLUTIONS INC
 2625 BOUL JACQUES CARTIER EST
 LONGUEUIL, QUEBEC
 J4N 1L7 *Tel.* : 450 641-3330

Bid 27/09/2018 29293

Sales Rep. : JEROME PRIMEAU
Reference : CHANTAL
Expiration Date : 26/12/2018

Customer : 6323336

DART AEROSPACE LTD
 1270, ABERDEEN STREET
 HAWKESBURY, ONTARIO
 K6A 1K7

Ship To :

Same

Tel.: 1 613 632-3336

<i>Item No.</i>	<i>Description</i>	<i>Qty</i>	<i>Price</i>	<i>Total</i>	<i>Tx</i>
CR444	HT; 1144 STRESSPROOF 4.000 DIA 1 X 24"	2	229.15	458.30	A
CR544	HT; 1144 STRESSPROOF 5.000 DIA, 1 X 24"	2	476.35	952.70	A
TR201	O-1 TFA TO FIN 2 RD 1 X 36"	34	3.75	127.50	A
TR301	O-1 TFA TO FIN 3 RD 1 X 36"	75	3.75	281.25	A
	5/7 JOURS				

Subtotal 5 340.75

A) Regist :

HST : 694.30

Total : 6 035.05

Chantal Lavoie

From: Chantal Lavoie
Sent: Thursday, September 27, 2018 9:37 AM
To: 'd.quenneville@acierouellette.com'
Subject: quote

Good morning Denis,
Please advise price an delivery on mat'l.

~~304 round bar 0.750" x 36 ft~~ ✓

~~A513 round tubing 0.875" x 0.120" wall x 20 ft~~ ✓
~~A513 round tubing 1" x 0.120" wall x 100 ft~~ ✓

~~4140 qt round bar 1.625" x 12 ft~~ ✓
~~4140 qt round bar 2" x 6 ft~~ ✓
~~4140 qt round bar 4.5" x 3 ft~~ ✓

~~17-4 H1150 round bar 1.5" x 12 ft~~ ✓
~~17-4 H1150 round bar 2" x 12 ft~~ ✓

not required.

~~1144 round bar 4" x 2 ft~~ ✓
~~1144 round bar 5" x 2 ft~~ ✓

~~O1 round bar 2" x 3 ft~~ ✓
~~O1 round bar 3" x 3 ft~~ ✓

Thanks
Chantal

Chantal Lavoie
Purchasing Coordinator

DART AEROSPACE
T 1 613 632-5200
F 1 613 632-1053
E clavoie@dartaero.com
1 800 556-4166
www.dartaerospace.com



Shipping Order

12/10/2018

NETAUX SOLUTIONS INC
325 BOUL JACQUES CARTIER EST
ONGUEUIL, QUEBEC
4N 1L7
Tel.: 450 641-3330

Order : 138600
Reference : 41198
Ship : PICK UP / PICK UP

Customer: 6323336

Ship To

DART AEROSPACE LTD
1270, ABERDEEN STREET
HAWKESBURY, ONTARIO
K6A 1K7

Same

Tel.: 1 613 632-3336

Item No.	Description	Qty	Qty. Delivered	B/O Qty
	***** FACTURER E-MAIL ***** SUPER IMPORTANT SUR LE PACKING SLIP INSCRIRE LES HEAT N			
DR444	1144 STRESSPROOF 4.000 DIA 1 X 24" ***** ✓ HT, C144390 M	2	2	✓
DR544	1144 STRESSPROOF 5.00 DIA 1 X 24" ***** ✓ HT, C144394 M	2	2	✓
FR301	O-1 TFA TO FIN 3 RD , 1 X 36" ✓ HT, 991703650B-48-4 M	75	75	✓
MR41241H	4140 HTSR ROU 4.500 DIA 1 X 27.5" ✓ HT, C141805 ✓ M	2.29	2.29	✓
	LIVRE JP			

Shipping : _____ Ref. : _____
Package No : _____
Merchandise Received: _____

CERTIFICATE OF TEST CERTIFICAT D'ESSAIS

Page 01 of 02

CUSTOMER ORDER NUMBER
NUMÉRO DE COMMANDE DU CLIENT

Certification Date
10-OCT-2018

45598-J
PART NUMBER/NUMÉRO DE PIÈCE
501821

Invoice Number
S712069

SOLD TO:	METAUX SOLUTIONS INC.	SHIP TO:	METAUX SOLUTIONS (RIVE-SUD)
VENDU À:	2625 BOUL JACQUES CARTIER EST LONGUEUIL QC J4N 1L7	EXPÉDIÉ À:	2625 BOUL JACQUES CARTIER EST LONGUEUIL QC J4N 1

Description: **STRESSPROOF** CF BAR ASTM A311 CL B
4 RD S/C 2'0" (24.0")
HEAT: **C144390** ITEM: 501821 Line Total: 85.54 LB

Specifications:
ASTM A108 13 **ASTM A311 CL B 15** ASTM A29/A29M 15

CHEMICAL ANALYSIS

C	MN	P	S	SI	NI	CR	MO
0.45	1.44	0.0090	0.269	0.28	0.06	0.10	0.02
CU	AL	V	N	PB	B	NB	
0.17	0.002	0.005	0.0090	0.001	0.0006	0.001	

RCPT: R485771

COUNTRY OF ORIGIN : USA

MECHANICAL PROPERTIES

DESCRIPTION	YLD STR PSI	ULT TEN PSI	%ELONG IN 02 IN	%RED IN AREA	HARDNESS BHN
	119373.0	132208.0	10.4	28.8	262

IDEAL DIAMETER : 2.36 IN

The above data were transcribed from the manufacturer's Certificate of Test after verification for completeness and specification requirements of the information on the certificate. All test results remain on file subject to examination. /Les informations ci-haut-mentionnées sont transcrites du certificat d'essais du manufacturier après vérification de l'état complet des spécifications inscrites sur le certificat. We hereby certify that the material covered by this report will meet the applicable requirements described herein, including any specification forming a part of the description. /Par les présentes, nous certifions que le matériel couvert par ce rapport rencontre les spécifications décrites ci-haut.
The willful recording of false, fictitious, or fraudulent statements in connection with test results may be punishable as a felony under federal statutes. /Les informations fausses, fictives ou frauduleuses en rapport avec le résultat des essais sont punissables en vertu des lois fédérales.

Material did not come in contact with mercury while in our possession. /Par les présentes, nous certifions que le matériel couvert par ce rapport rencontre les spécifications décrites ci-haut.

JOANNE DESPRES



MANAGER QUALITY ASSURANCE
GÉRANT DE L'ASSURANCE QUALITÉ

CERTIFICATE OF TEST CERTIFICAT D'ESSAIS

Page 02 of 02

CUSTOMER ORDER NUMBER
NUMÉRO DE COMMANDE DU CLIENT

Certification Date
10-OCT-2018

Invoice Number
S712069

45598-J
PART NUMBER/NUMÉRO DE PIÈCE
501821

SOLD TO:	METAUX SOLUTIONS INC.	SHIP TO:	METAUX SOLUTIONS	(RIVE-SUD)
VENDU À:	2625 BOUL JACQUES CARTIER EST LONGUEUIL QC J4N 1L7	EXPÉDIÉ À:	2625 BOUL JACQUES CARTIER EST LONGUEUIL QC J4N 1	

Description: STRESSPROOF« CF BAR ASTM A311 CL B
4 RD S/C 2'0" (24.0")
HEAT: C144390
ITEM: 501821
Line Total: 85.54 LB

MATERIAL IS FREE FROM MERCURY CONTAMINATION
NO WELD REPAIR PERFORMED ON MATERIAL

COMMENTS

reduction ratio 9.9:1
source/melt: usa

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The willful recording of false, fictitious, or fraudulent statements in connection with test results may be punishable as a felony under federal statutes. /Les informations fausses, fictives ou frauduleuses en rapport avec le résultat des essais sont punissables en vertu des lois fédérales.

Material did not come in contact with mercury while in our possession./Par les présentes, nous certifions que le matériel couvert par ce rapport rencontre les spécifications décrites ci-haut.

JOANNE DESPRES



MANAGER QUALITY ASSURANCE
GÉRANT DE L'ASSURANCE QUALITÉ

REV	DESCRIPTION	DATE	BY	APPROVED
A	NEW ISSUE	17.08.09	VM	WM

2017.09.12

PURCHASE MATERIAL : AISI 1144 STRESSPROOF STEEL ROUND BAR
SPECIFICATION: ASTM A311 of UNS G11440
PART NUMBER: MT-1144-R [D.DDD]
WHERE "D.DDD" = DIAMETER IN INCHES
EG. 5/8" ROUND BAR = MT-1144-R0.625

[illegible]

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M7-1144-R4.000
 DATE: 18/10/19

PO / BATCH NO.: P0041198/S119930

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 254
 QUANTITY INSPECTED: 254
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 4.000"
 THICKNESS RECEIVED: 4.000"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <u>(N)</u>	
CORRECT FINISH	<u>(Y)</u> N	
CORROSION	Y <u>(N)</u>	
CORRECT GRAIN DIRECTION	<u>(Y)</u> N	
CORRECT MATERIAL PER M-DRAWING	<u>(Y)</u> N	ASTM A311
CORRECT THICKNESS	<u>(Y)</u> N	
PHOTO REQUIRED	Y <u>(N)</u>	
CORRECT REF # TO LINK CERT	<u>(Y)</u> N	MT: C144390
CORRECT MATERIAL IDENTIFICATION	<u>(Y)</u> N	
CORRECT M# ON THE MATERIAL	<u>(Y)</u> N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <u>(N)</u>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <u>(N)</u>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT</u> DATE: <u>18/10/19</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

CERTIFICATE OF TEST CERTIFICAT D'ESSAIS

Page 01 of 01

Certification Date
10-OCT-2018

CUSTOMER ORDER NUMBER
NUMÉRO DE COMMANDE DU CLIENT

Invoice Number
T384705

45598-J
PART NUMBER/NUMÉRO DE PIÈCE
526220

SOLD TO: METAUX SOLUTIONS INC.	SHIP TO: METAUX SOLUTIONS (RIVE-SUD)
VENDU À: 2625 BOUL JACQUES CARTIER EST	EXPÉDIÉ À: 2625 BOUL JACQUES CARTIER EST
LONGUEUIL QC J4N 1L7	LONGUEUIL QC J4N 1

Description: 1144 CF BAR JDM A0 QL-2
5 RD S/C 2'0" (24.0")

HEAT: C144394 ITEM: 526220

Line Total: 133.66 LB

Specifications:

JDM A0 QL-2
ASTM A576 14

ASTM A108 13

ASTM A29 16

CHEMICAL ANALYSIS

C	MN	P	S	SI	CU	NI	MO
0.43	1.40	0.008	0.2510	0.29	0.16	0.05	0.02
CR	AL	CB	N	V			
0.07	0.002	0.001	0.0096	0.004			

RCPT: R475948

COUNTRY OF ORIGIN : USA

MATERIAL IS FREE FROM MERCURY CONTAMINATION
NO WELD REPAIR PERFORMED ON MATERIAL

COMMENTS

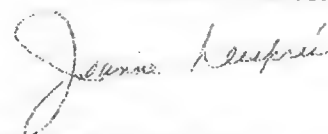
reduction ratio 5:1
country of origin: usa

The above data were transcribed from the manufacturer's Certificate of Test after verification for completeness and specification requirements of the information on the certificate. All test results remain on file subject to examination. /Les informations ci-haut-mentionnées sont transcrites du certificat d'essais du manufacturier après vérification de l'état complet des spécifications inscrites sur le certificat. We hereby certify that the material covered by this report will meet the applicable requirements described herein, including any specification forming a part of the description. /Par les présentes, nous certifions que le matériel couvert par ce rapport rencontre les spécifications décrites ci-haut.

The willful recording of false, fictitious, or fraudulent statements in connection with test results may be punishable as a felony under federal statutes. /Les informations fausses, fictives ou frauduleuses en rapport avec le résultat des essais sont punissables en vertu des lois fédérales.

Material did not come in contact with mercury while in our possession. /Par les présentes, nous certifions que le matériel couvert par ce rapport rencontre les spécifications décrites ci-haut.

JOANNE DESPRES



MANAGER QUALITY ASSURANCE
GÉRANT DE L'ASSURANCE QUALITÉ

(Viewing data as-entered. [Click here](#) to return)**AISI 1144 Steel, as rolled****Categories:** [Metal](#); [Ferrous Metal](#); [Carbon Steel](#); [AISI 1000 Series Steel](#); [Medium Carbon Steel](#)**Material Notes:** Applications include cold drawn or finished bar, cold punched nuts, split rivets, machine screws, and wood screws.**Key Words:** UNS G11440, ASTM A29, ASTM A108, ASTM A311, FED QQ-S-637 (C1144), SAE J403, SAE J412, SAE J414**Vendors:** [Click here](#) to view all available suppliers for this material.Please [click here](#) if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Original Value	Comments
Density	7.87 g/cc	Typical for steel.

Mechanical Properties	Original Value	Comments
Hardness, Brinell	212	
Hardness, Knoop	235	Converted from Brinell
Hardness, Rockwell B	94	Converted from Brinell
Hardness, Rockwell C	16	Converted from Brinell hardness. Value below normal HRC range, for comparison purposes only.
Hardness, Vickers	223	Converted from Brinell
Tensile Strength, Ultimate	705 MPa	
Tensile Strength, Yield	420 MPa	
Elongation at Break	21 %	
Reduction of Area	41 %	
Modulus of Elasticity	200 GPa	Typical for steel
Bulk Modulus	160 GPa	Typical for steel.
Poissons Ratio	0.29	Typical For Steel
Shear Modulus	80.0 GPa	Typical for steel.
Izod Impact	43.0 J	normalized at 900°C (1650°F)
	53.0 J	as rolled
	65.0 J	annealed at 815°C (1500°F)

Electrical Properties	Original Value	Comments
Electrical Resistivity	0.0000170 ohm-cm @Temperature 20.0 °C	condition of specimen unknown

Thermal Properties	Original Value	Comments
CTE, linear	11.5 µm/m-°C @Temperature 20.0 °C	Typical steel
	12.2 µm/m-°C @Temperature 0.000 - 300 °C	Typical for steel
	13.9 µm/m-°C @Temperature 0.000 - 500 °C	Typical for steel
Specific Heat Capacity	0.472 J/g-°C	Typical steel
Thermal Conductivity	51.9 W/m-K	Typical steel

Component Elements Properties	Original Value	Comments
Carbon, C	0.40 - 0.48 %	
Iron, Fe	97.5 - 98.01 %	As remainder
Manganese, Mn	1.35 - 1.65 %	

REV	DESCRIPTION	DATE	BY	APPROVED
A	NEW ISSUE	17 08.09	VCM	WM

24

PURCHASE MATERIAL : AISI 1144 STRESSPROOF STEEL ROUND BAR
SPECIFICATION: ASTM A311 or UNS G11440
PART NUMBER: MT-1144-R [D.DDD]
WHERE "D.DDD" = DIAMETER IN INCHES
EG. 5/8" ROUND BAR = MT-1144-R0.625

[illegible]

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-1144-R5.000
 DATE: 18/10/26

PO / BATCH NO.: P241198/SL19931

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 24
 QUANTITY INSPECTED: 24
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 5.000"
 THICKNESS RECEIVED: 5.000"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	(Y) N	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	(Y) N	
CORRECT MATERIAL PER M-DRAWING	(Y) N	ASTM A108
CORRECT THICKNESS	(Y) N	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	(Y) N	MT: C144394
CORRECT MATERIAL IDENTIFICATION	(Y) N	
CORRECT M# ON THE MATERIAL	(Y) N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	(Y) (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT 18/10/26</u>	SIGNED OFF BY: <u>[Signature]</u>
DATE: <u>18/10/26</u>	DATE: <u>26 OCT 2018</u>

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

CERTIFICAT D'ANALYSE

DART AEROSPACE LTD
1270, ABERDEEN STREET
HAWKESBURY, ONTARIO
K6A 1K7

12 oct. 2018

DESCRIPTION OF MATERIAL

Heat No	Lot	Grade and Size of Material
991703650B	48 4	01 TFA TO FIN 3 RD

MECHANICAL PROPERTIES

Quantity	Yield PSI	Tensile PSI	% Elong In.	% Red Area	Hardness	Impact
282 LBS	0	0	0	0	BHN206	

CHEMICAL PROPERTIES

C	MN	P	S	SI	NI	CR	V	W	MO	CU	CO	AL
0.940	1.040	0.021	0.003	0.250		0.510	0.080	0.530				
N	PB	SN										

NOTES

ASTM A881-08
MELTING PROCESS EAF+LF+VOD
ULTRASONIC TEST OK ACCORDING TO SEP 1921, (DEC.84) E/e
MATERIAL FREE FROM MERCURY CONTAMINATION
NO WELD REPAIR PERFORMED

Country of Origin: China

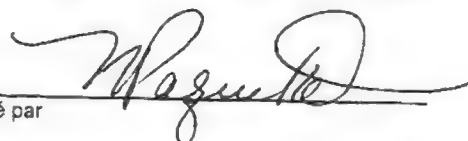
ITEM 3: 1 X 36"

COMMANDE : 138600

REF : 41198

Métaux Solutions inc. certifie que les analyses sur ce document sont exactes et que le matériel rencontre les spécifications énumérées.

Préparé par



SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL : AISI O1 TOOL STEEL ROUND BAR

SPECIFICATION:
DIN 1.2510 or B.S. BO 1 or
SAE J437 or SAE J438
or UNS T31501 or ASTM A681

PART NUMBER:
MT-O1-R [D.DDD]
WHERE "D.DDD" = DIAMETER IN INCHES
EG. 5/8" ROUND BAR = MT-O1-R0.625

REV	DESCRIPTION	DATE	BY	APPROVED
A	NEW ISSUE	17.08.09	VM	WM

DART AEROSPACE		HAMILTON, Ontario, Canada	
AISI O1 TOOL STEEL ROUND BAR			
DESIGN BY		MT-O1-R	
CHECKED		A	
MFG. APPR		1 DIMENSIONS ARE IN INCHES	
QA APPR		2 MATERIALS ARE TO BE USED	
APPROVED		3 MATERIALS ARE TO BE USED	
DATE		SCALE	
8/31/2017		N/A	
SHEET 1 OF 1		SHEET 1 OF 1	
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EN-7-1A9

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-01-R3.000

PO / BATCH NO.: P0041198 / SH9932

DATE: 18/12/19

MATERIAL CERT REC'D: Yes

THICKNESS ORDERED: 3.000"

QUANTITY RECEIVED: 3ft

THICKNESS RECEIVED: 3.000"

QUANTITY INSPECTED: 3ft

SHEET SIZE ORDERED: —

QUANTITY REJECTED: 0

SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <u>(N)</u>	
CORRECT FINISH	<u>(Y)</u> N	
CORROSION	Y <u>(N)</u>	
CORRECT GRAIN DIRECTION	<u>(Y)</u> N	
CORRECT MATERIAL PER M-DRAWING	<u>(Y)</u> N	ASTM A681
CORRECT THICKNESS	<u>(Y)</u> N	
PHOTO REQUIRED	Y <u>(N)</u>	
CORRECT REF # TO LINK CERT	<u>(Y)</u> N	MT: 9917036508 48 4
CORRECT MATERIAL IDENTIFICATION	<u>(Y)</u> N	
CORRECT M# ON THE MATERIAL	<u>(Y)</u> N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <u>(N)</u>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <u>(N)</u>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT</u>	SIGNED OFF BY: _____
DATE: <u>18/10/19</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



**NIAGARA
LASALLE**
CORPORATION

1412 160th Street
Hammond IN 46327-1799

CERTIFICATION

CERTIFICATE	Rev
H183757	3
DATE	01/05/18
PAGE	6

PURCHASE ORDER **B39144**

ORDER **958029-1**

CUSTOMER ITEM **V122302** ITEM **144500240Q04**

GRADE **QT4140** SHAPE **Round**

SIZE **4.5000** SIZE MM **114.3000 MM**

LENGTH **20' 0" / 24' 0"** LENGTH MM **6096 / 7315.2**

4140/42 VD-CAVAL-TRT QT-HR-STRESS FREE 110K TS 85K YS (.02% 80K) 18% EL 50% R/A SURFACE BHN 289/321 Spec/Rev: ASME SA193/SA193M GR-B7 Spec/Rev: ASTM A193/A193M-14 GR-B7 Spec/Rev: ASTM A29/A29M-16 Spec/Rev: ASTM A322-13 Spec/Rev: ASTM A434-06(2012) CL-BC

HEAT		GRAIN PRACTICE		SOURCE / MELTED				CAST		REDUCTION RATIO		DI				
C141805		FINE(5-8)		STEEL DYNAMICS (USA)				BLOOM		8.8:1		5.69				
CHEMISTRY																
C	MN	P	S	SI	NI	CR	MO	CU	AL	V						
0.410	0.790	.011	.013	0.260	0.220	0.990	.210	.300	.021	.001						
N	TE	AS	PB	SE	BI	B	NB									
.008	N/A	N/A	.001	N/A	N/A	.0003	.0010									
MECHANICAL																
JOB	TENSILE		.2% YIELD		ELONG		R OF A		HARDNESS		.02% YIELD		SR TEMP			
HS46978	148,762 PSI		124,359 PSI		19.00		52.30		HBN = 285		102,042					
QUENCH & TEMPER																
JOB	MACRO		SURFACE		AUSTENITIZED			TEMPERED			STRESS					
HS46978	SATISFACTORY	HBN = 302	TEMPERATURE		TIME		QUENCH		TEMPERATURE		TIME		TEMPERATURE		TIME	
			1660F		3.2 HRS		WATER		1150F		6.1 HRS		STRESS FREE			
HARDENABILITY																
01	02	03	04	05	06	08	10	12	14	16	20	24	28	32		
57	57	57	57	57	57	57	53	50	50	47	46	45	43	39		
LOT																
LOT		JOB		WEIGHT (LBS)		PIECES		LOT		JOB		WEIGHT (LBS)		PIECES		
5668664		HS46978		4,970		4										

WE, hereby certify that these goods were produced in compliance with all applicable requirements of sections 6, 7, and 12 of the Fair Labor Standards Act, as amended, and all regulations and orders of the United States Department of Labor issued under section 14 thereof. Material was not exposed to mercury or any metal alloy that is liquid at ambient temperature during processing or while in our possession. No weld repairs performed on the above material.

CERTIFICATE OF TEST

By:

Walter P. Kretzler

Walter P. Kretzler - Director of Q.A./Chief Metallurgist

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL : AISI 4140 QUENCHED & TEMPERED STEEL ROUND BAR
SPECIFICATION: ASTM 4140 QT or ASTM 4142 QT
PART NUMBER: MT-4140QT-R (D.DDD)
WHERE "D.DDD" = DIAMETER IN INCHES
EG. 5/8" ROUND BAR = MT-4140QT-R0.625

REV.	DESCRIPTION	DATE	BY	APPROVED
A	NEW ISSUE	17.09.12	VM	VM

DART AEROSPACE		PART NUMBER: DART-000001				
TITLE: AISI 4140 Q&T ROUND BAR						
DWG. NO.		REV. A				
DESIGN BY:	VM 8/09/2017	XXX 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000	DATE: 09/14/2017	SCALE: NTS	WEIGHT: 0.0 LBS	SHEET: 1 OF 1
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UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE.						

ECN 17-655

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-4140QT-R4.500

PO / BATCH NO.: P0041198/S117933

DATE: 12/10/26

MATERIAL CERT REC'D: Yes

THICKNESS ORDERED: 4.500"

QUANTITY RECEIVED: 34

THICKNESS RECEIVED: 4.500"

QUANTITY INSPECTED: 34

SHEET SIZE ORDERED: —

QUANTITY REJECTED: 0

SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	Y (N)	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	Y (N)	
CORRECT MATERIAL PER M-DRAWING	Y (N)	
CORRECT THICKNESS	Y (N)	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	Y (N)	MT: C141805
CORRECT MATERIAL IDENTIFICATION	Y (N)	
CORRECT M# ON THE MATERIAL	Y (N)	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AA</u> DATE: <u>12/10/26</u>	SIGNED OFF BY: <u>[Signature]</u> DATE: <u>76 OCT 2026</u>

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in